

# POLLIA THUNB. (COMMELINACEAE): THE FIRST GENERIC RECORD FROM THE NEW WORLD

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## ABSTRACT

A collection from Panama, representing the first New World record of *Pollia*, is described as *P. americana* Faden. The plant appears to be indigenous.

The genus *Pollia* Thunb. (including *Aclisia* E. Mey.) is widely distributed in the tropics and subtropics of the Old World. Approximately 12 species occur from India and Sri Lanka to China, Japan, Malaysia, the Philippines, New Guinea, eastern Australia, and the Solomon Islands. Another four are confined to tropical Africa, including Madagascar. In 1974 I received for determination a fruiting specimen from Panama (*Gentry* 3806) which clearly belonged to this genus and embodied the first New World record of it. The specimen appeared to represent an undescribed species, but as I had not seen material of some *Pollia* taxa, I hesitated to describe a new one. In 1976 I was able to study specimens of the remaining species in the genus at the Royal Botanic Gardens, Kew, and Muséum National d'Histoire Naturelle, Paris, and to confirm that the Panamanian plant is not conspecific with any described species.

### *Pollia americana* Faden, sp. nov.—FIG. 1.

Herba foliis anguste ellipticis ad oblanceolato-elliptica, (15–)23–30 cm longis, (5–)6.5–7.5 cm latis. Inflorescentiae thyrsi terminales, pedunculati, anguste ovoidei, 14.5–16 cm longi, 8–9.5 cm lati, cincinnis ca. 50–62 pro parte maxima subverticillatis compositi. Cincinni ascendentes, 2–5.5 cm longi, 2–8 flores efferentes, dense puberuli. Pedicelli frugiferi erecti ad ascendentes, 4–5.5 mm longi. Fructus bacciformes, indehiscentes, sphaerici, cyanei, 5.5–7 mm diametro. Semina biseriata, 2–5 in quoque loculo, 8–12 in quoque fructu, 2.6–3.1 mm diametro, hilo lineari, 0.5–0.75 mm longo.

Herb ca. 0.5 m tall. Leaves (except the uppermost, reduced ones on the peduncle) petiolate; sheaths overlapping, 2–3 cm long, puberulous-scabrid with hook-hairs (terminology of Tomlinson, 1966), not ciliate at the apex; laminae narrowly elliptic to oblanceolate-elliptic, (15–)23–30 cm long, (5–)6.5–7.5 cm wide, the apex acuminate, the base attenuate, both surfaces puberulous-scabrid, the adaxial with prickly hairs, the abaxial with hook-hairs, the margins scabrid with prickly hairs, especially towards the apex; petioles not undulate. Inflorescences solitary, terminal, pedunculate thyrses, the peduncles robust, 14–16 cm long, bearing 1–2, spaced, reduced, sessile leaves, densely puberulous with hook-hairs; thyrses narrowly ovoid, 14.5–16 cm long, 8–9.5 cm wide, with ca. 50–62, mostly subverticillate, ascending (or the uppermost patent) cincinni; inflorescence axis densely puberulous with uniform-length hook-hairs; cincinnus bracts herbaceous, lanceolate, 4–10 mm long, reflexed, mostly persistent, sparsely puberulous

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FIGURE 1. Holotype of *Pollia americana* Faden, Gentry 3806 (MO).

abaxially; cincinni 2–5.5 cm long, 2–8 flowered; cincinnus peduncles 7–17 mm long, the longest in the lower cincinni, decreasing upwards, densely puberulous with uniform-length hook-hairs; cincinnus axis slightly undulate between the bracteoles, densely puberulous with uniform-length hook-hairs; bracteoles spaced 4–8 mm apart, cup-shaped, perfoliate (occasionally splitting to the base), more

or less herbaceous, 2.5–4 mm long, not evidently glandular, puberulous, especially towards their bases. Flowers unknown. Fruiting pedicels ascending to erect, 4–5.5 mm long, glabrous or sparsely puberulous. Sepals persistent and reflexed in fruit, convexo-concave, ca. 4 mm long, glabrous or very sparsely puberulous. Fruits bacciform, indehiscent, spherical, 5.5–7 mm in diameter, lustrous, pale blue with darker blue patches, cells of the outer wall mostly transversely elongate. Seeds biseriate, 2–5 per locule, 8–12 per fruit, triangular to polygonal in outline, dorsoventrally flattened, 2.6–3.1 mm in diameter, testa grey brown, finely pitted, embryotega concolorous, hilum linear, 0.5–0.75 mm long.

TYPE: PANAMA. PANAMÁ: Ca. 16 km from Río Bayano on trail to Santa Fé, herb 0.5 m, fruits blue black, 25 Jan. 1972, A. Gentry 3806 (MO, holotype; BM, isotype).

#### RELATIONSHIPS

The relationships of *P. americana* are difficult to assess. This is due largely to the ambiguity regarding which characters are indicative of affinity in this genus. I have previously noted that the use of certain attributes to delimit sections of *Pollia*, e.g., number of fertile stamens (Clarke, 1881), has resulted in apparently unnatural sections, and that no satisfactory division of the genus has been proposed (Faden, 1975). The lack of flowers in Gentry 3806 prevents its placement to section in any published scheme.

*Pollia americana* is highly distinctive because of its large, hairy leaves, large, robust inflorescences with numerous, mostly subverticillate cincinni, widely spaced bracteoles, and large seeds (apparently the largest in the genus). It is most similar to *P. hasskarlii* Rolla Rao (Himalayas to Java), *P. japonica* Thunb. (Japan to China), *P. macrophylla* (R.Br.) Benth. (Philippines to Australia), *P. verticillata* Hall. f. (New Guinea), and *P. gracilis* C. B. Clarke var. *madagascariensis* H. Perr. (Madagascar) in inflorescence form and cincinnus arrangement. *Pollia hasskarlii* departs from *P. americana* in its undulate petioles, smaller inflorescences, caducous cincinnus bracts, bracteoles and sepals, densely puberulous sepals, more isodiametric cells of the outer fruit wall, and smaller seeds; *P. japonica* differs in its longer-pedunculate inflorescences with more widely separated whorls of cincinni, less widely spaced bracteoles, shorter fruiting pedicels, and smaller seeds; *P. macrophylla* contrasts by its smaller, glabrous laminae, smaller, less robust, more shortly pedunculate inflorescences, longer, decurved fruiting pedicels, narrower, ellipsoid, plumbeous fruits, and smaller seeds with a smooth, grey testa; *P. verticillata* diverges in its smaller leaves with caudate apices, smaller, less robust, more shortly pedunculate inflorescences, longer fruiting pedicels, deciduous sepals, and smaller seeds with a smooth, grey testa; *P. gracilis* var. *madagascariensis* differs in its less robust inflorescences, narrower, ellipsoid, grey brown fruits, and apparently smaller seeds (only immature seeds seen).

#### DISCUSSION

*Pollia americana* appears to be indigenous in Panama. Recent introduction would seem to be ruled out by its distinctness from all Old World species. Its

undisturbed rain forest habitat also suggests nativeness. A number of *Pollia* species are widely distributed on islands and are evidently easily dispersed long distances. This dissemination is probably enhanced by birds eating the berrylike fruits. Thus the spread of *Pollia* to the New World can readily be explained by natural dispersal.

In addition to *Pollia*, only five other genera of Commelinaceae (out of the approximate 45 in the family) have indigenous species in both the New and Old Worlds: *Aneilema* (1 of its 60 species in the New World), *Buforessia* (1 of 3), *Commelina* (ca. 15–20 of ca. 200), *Floscopa* (3–4 of ca. 20), *Murdannia* (4 of 40–45). *Pollia* agrees with all of them in having the bulk of its species in the Old World. It is most like *Murdannia* in having its main center of diversity in tropical Asia, while the other four genera are exclusively (*Buforessia*) or predominantly African.

All six of these genera appear to have been dispersed from the paleotropics to the neotropics. This is implied by the greater number of Old than New World species in all of them. It may also be inferred from the fact that the closest relationships of all these genera, except *Commelina*, are with strictly Old World genera. Even *Commelina* appears to have been an offshoot of the evolutionary line which produced *Spatholirion*, *Streptolirion* and *Aëtheolirion*, all Asiatic genera, while the genera of closest affinity to *Commelina*, the neotropical *Phaeosphaerion* and *Commelinopsis*, are evidently derivatives from it, and probably arose subsequent to its dispersal to the New World. Studies at the species level are sufficiently advanced only in *Aneilema* to shed some light on the question of geographic origin. The single neotropical species, *A. umbrosum* (Vahl) Kunth, is part of a species complex centered in West Africa and clearly has reached the neotropics in relatively recent times (Faden, 1975).

The American distributions of the amphi-Atlantic genera of Commelinaceae suggest in most cases dispersal from the paleotropics to South America. The indigenous American species of *Murdannia* and *Buforessia* are strictly South American; *Aneilema* reaches western Panama at its northern limit; *Floscopa* has all its species in South America, with one extending to Nicaragua. *Commelina* has reached the New World at least twice and is well represented in both North and South America. Our knowledge of its species is too incomplete to determine where they might first have arrived in the New World. *Pollia* is the only one of these genera not known from South America. Its eastern Panamanian distribution, however, suggests that it may occur in the poorly known, adjacent part of that continent.

The discovery of *Pollia* in the New World represents a remarkable range extension. It is now added to a growing list of amphi-Atlantic genera once considered restricted to the Eastern or Western Hemispheres: *Maranthes* (Chrysobalanaceae; Prance, 1968), *Hymenaea* (Leguminosae, Caesalpinoideae; Lee & Langenheim, 1975), *Commiphora* (Burseraceae, Gillett, personal communication).

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